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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/046,118 03/20/98 BOICE

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EXAMINER

WONG, A

ART UNIT

PAPER NUMBER

2613

DATE MAILED:

11/02/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/046,118

Applicant(s)

BOICE ET AL.

Examiner

Allen Wong

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,7,8,10-28,31-41 is/are rejected.
- 7) ☒ Claim(s) 3-6,9,29 and 30 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 8/20/01 have been fully read and considered but they are not persuasive.

Regarding pages 25-28 of applicants' remarks, applicants assert that Reininger (5,426,463) does not address or discuss the same problem that the present invention is related to. The examiner respectfully disagrees. Reininger invention pertains to the MPEG video encoding (col.2, lines 28-47). In MPEG encoding, a group of frames (GOP) are assembled from a collection of still images (ie. I, P, and B frames). Moreover, Reininger discloses that when a group of frames are assembled into a GOP, these still images (ie. I, P, and B frames) are assembled in a series of still frames within a sequence of video frames (col.2, lines 28-47). Clearly, still pictures are mentioned in the MPEG environment of Reininger. The applicants' Figure 1 is very similar to Reininger's Figure 2. For instance, both Reininger's Figure 2 and the applicants' Figure 1 show a DCT, quantizer, VLC, inverse quantizer, inverse DCT, etc. To summarize the examiner's perspective, Reininger is very relevant to the rejection of this case.

With regards to pages 28-29 of applicants' remarks, applicants' argue that Yanagihara (5,321,440) fails to teach or suggest the limitation of "pulsation artifact". The examiner respectfully disagrees. The applicants' contend that "jitter", the term used by Yanagihara, cannot be used to substitute "pulsation artifact". This is not true. As one of ordinary skilled in the art, the term "jitter" refers to the errors or distortions that occurs from the display of a sequence of still images after going through the

encoding/decoding process. The elimination of jitters or pulsation artifacts is well known and the teachings of Yanagihara cover the deficiencies of Reininger, as exhibited in the 35 USC 103 rejection below. To one of ordinary skilled in the art, the motivation to combine the teachings of Reininger and Yanagihara is to improve the encoding efficiency while maintaining high image quality. The references of Reininger and Yanagihara are considered to be analogous art because both references pertain to the field of video processing and enhancing video encoding efficiency.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 19, 23, 34 and 37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "substantially identical" from the newly added limitation is not disclosed or suggested in the applicants' specification. Is the still frame identical or not identical to the content of a preceding frame? It is not clearly disclosed in the applicants' specification about whether or not the still frame is "substantially identical" to the content of a preceding frame, thus the scope is unknown.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 7, 8, 10-28 and 31-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reininger (5,426,463) in view of Yanagihara (5,321,440).

As for claim 23, Reininger discloses a system for encoding a sequence of video frames comprising:

a pre-encode processing unit (fig.2, element 25), said pre-encoding processing unit comprising:

a statistics measurement unit for use in determining whether a current frame of the sequence of frames comprises a still frame, said still frame comprising a frame with content substantially identical to content of a preceding frame (fig.2, element 28 counts the number of bits that allows the determination of whether a current frame of the sequence of frames comprises a still frame or I-picture among other preceding frames);

a control unit (fig.2, element 27; note the processor modifies at least the quantization, element 14) for modifying at least one controllable parameter (parameter being bit allocation or quantization step size) employed in encoding said still frame (ie. I-picture) between still frames of a sequence of still frames when said statistics measurement unit determines said current frame to comprise said still frame; and

an encoding engine (fig.2, element 15 is a encode engine that encodes said current frame of the sequence of video frames using the at least one controllable

encode parameter set by the pre-encode processing unit, element 25) for encoding said current frame of the sequence of video frames using the at least one controllable encode parameter set by said pre-encode processing unit.

Although Reininger may not appear to disclose the limitation "minimize after decoding thereof, visually perceptible pulsation artifacts between still frames of a sequence of still frames", Yanagihara teaches the time base corrector is used for eliminating jitter (ie. "pulsation artifact") or error that occurs after the video decoding process (col.15, lines 22-32). Further, Yanagihara's figure 3 shows that the video data is decoded in element 32 and the time base corrector, element 35, is after the decoder 32. Thus, Yanagihara's time base corrector equivalently functions to minimize "pulsation artifacts" during the video encoding/decoding processes. Therefore, it would have been obvious to one of ordinary skill in the art to take the teachings of Reininger and Yanagihara as a whole for eradicating encoding/decoding distortions and errors so as to produce high-quality images without reducing encoding efficiency.

Note claims 1, 2, 14, 19, 20, 31, 34, 35, 37, 38 and 41 have similar corresponding elements.

Regarding claims 7, 8, 24 and 25, Reininger discloses that still picture (ie. I frame), P frame or B frame types can be determined (col.6, lines 47-54; note fig.2, element 28 counts the amount of data and makes a frame-type determination from the amount of data acquired by the counter of the pre-encoding unit, element 25).

Regarding claims 10, 26 and 39, Reininger discloses that a predictive error can be determined by the "predict" section as shown in fig. 2, element 19.

Regarding claims 11-13, 15-18, 21, 22, 27, 28, 36 and 40, Reininger discloses an I frame adaptive quantization table (fig.4), a P frame adaptive quantization table (fig.6), and a B frame adaptive quantization table (fig.5) for adaptively adjust the quantizing unit's step size so that an appropriately encoding bit rate can be used depending on the type of frame that is being determined so to avoid encoding inaccuracies or "pulsation artifact." Also, Reininger discloses that the pre-encoding unit's processor in figure 2, element 27 is used for the purpose of determining an appropriate quantization level so that a proper bit rate can be employed for encoding (col.6, lines 58-67 and col.7, lines 1-27).

Allowable Subject Matter

Claims 3-6, 9, 29 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen Wong whose telephone number is (703) 306-5978. The examiner can normally be reached on Mondays to Thursdays from 8am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Kelley can be reached on (703) 305-4856. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

AW
October 31, 2001


CHRIS KELLEY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600